

DRAFT List of Unresolved COC and PRG Issues – 23 April 2014

General Issues

- Background
 - We continue to have concerns about the calculation methodologies and use of upstream bedded sediment data as representative of reasonable background conditions for Portland Harbor.
 - Within Site “equilibrium” or “baseline” values are likely more appropriate for use in the selection of PRG values, because these better represent what the Site can attain post remediation. EPA has indicated this concept will be further discussed in future issues discussions, and the LWG plans to submit some information to EPA on this concept.
 - Background (or equilibrium type) levels in surface water should be developed for comparison to surface water PRGs (similar to sediment PRG comparisons).
 - Background (or equilibrium type) levels in TZW should be developed for comparison pore water and groundwater PRGs (similar to sediment PRG comparisons).
 - The PCB tissue background value presented by EPA is below upstream tissue concentrations. Although EPA has indicated that tissue values will be used for long term monitoring information purposes only, and will not be used as performance goals, this tissue concentration is not attainable.
 - A background value for dioxin/furan TEQ (as opposed to the current PCDD/PCDF value) should be calculated for comparison to EPA’s sediment dioxin/furan TEQ PRGs.
- Food Web Model
 - The exact methods that EPA is following while using the Food Web Model spreadsheet is unclear and LWG needs the information and time to verify those methods.
 - PRGs should be set using the actual upstream surface water concentrations (not zero or AWQC, both of which represent unattainable conditions in surface water for many chemicals).
- Spatial Scales and Extents
 - EPA recently (15-Apr-14 meeting) described briefly a potential framework for PRG spatial scale application that includes three types of assessment including: one surrogate spatial scale for each RAO, SDU spatial scales, and a residual risk assessment that would follow copy the risk assessment spatial scales.
 - Given the spatial scale application of the PRGs is as important as the numeric PRG value, we have had insufficient information and time to fully assess the PRG spatial scale applications and implications.
 - A PRG should not be applied in an area where that chemical and receptor/scenario had no unacceptable risks found in the risk assessments.
- Basis of COC Determinations
 - EPA has provided four bases for the selection of COCs, each of which is described in a few words. EPA has also briefly described these bases in recent meetings, and indicated this would be further described in the Section 2 revised FS write up. The LWG does not currently understand the full meaning of each COC basis statement or how those bases were consistently applied across all RAOs and chemicals to arrive at the current COC list.
- Contingent Comments
 - In some cases, we did not list more detailed input related to some specific PRGs due to the fact that a more general comment suggests that the PRG or set of PRGs should be removed entirely. In these cases, if EPA rejects the LWG’s suggestion to remove the

PRG(s), the LWG may have more specific input about the correct numeric value for some PRGs. For example, for RAO 7, the new Oregon arsenic criteria is now described as 150 ug/l “dissolved” total inorganic arsenic (As III + As V)” so this would need to be updated should this PRG be retained.

RAO-Specific Issues

- RAO 1, Sediment
 - All - The site use factor should not be excluded from the calculation of sediment direct contact PRGs under RAO 1 because the underlying assumptions for each exposure scenario in the baseline risk assessment adequately represents the “reasonable maximum exposure”. Thus, the sediment PRGs under RAO 1 should be four times higher than the values currently shown.
 - Arsenic – With the site use factor, the risk-based PRG should be 4, which is higher than EPA’s background value.
- RAO 2, Tissue
 - BaPEq – The PRG should be based on clam consumption (not fish consumption).
 - Aldrin – The PRG should be based on clam consumption (aldrin is not a COC for fish consumption).
 - A footnote should be added to the table that indicates tissue levels shown do not represent performance goals, per EPA’s verbal indications in recent meetings.
- RAO 2, Sediment
 - EPA’s approach to calculate the PRG is technically incorrect and fundamentally flawed (i.e., the application of TEFs to model 2,3,4,7,8-PeCDF).
 - BaPEq –
 - Rather than using site-wide average organic carbon, the PRG should be expressed on an organic carbon normalized basis.
 - It is technically incorrect to use a clam PRG as a surrogate for vertebrate fish consumption risks, given there is no relationship in site data between vertebrate fish tissue and sediment BaPEq concentrations.
 - EPA should not further explore the sediment “floor concentration” for vertebrate fish for BaPEq, because there is no relationship between vertebrate fish tissue and sediment BaPEq concentrations. Any “floor” value picked will be mostly based on tissue laboratory detection limits, not site data.
 - Aldrin – This PRG should be based on clam consumption, not fish consumption.
 - Hexachlorobenzene – We cannot determine the source of this value; however, we disagree with the approach described by Kristine Koch in her email dated April 11, 2014. The PRGs for the individual species in the multi-species diet are not additive but rather averaged.
- RAO 2, Surface Water
 - We continue to disagree that “source” PRGs should be presented in the revised FS since the focus of this document is on sediment remediation. If needed, source PRG values would be better derived and presented in a separate document executed by EPA and DEQ under the Joint Source Control Agreement.
 - As a corollary, we continue to disagree that there should be surface water PRGs for RAO 2 for any chemicals that were not found to pose unacceptable risk for fish or shellfish consumption in the BHHRA. This includes all chemicals listed except for PCBs,

- dioxins/furans, cPAHs, aldrin, dieldrin, total chlordanes, total DDX, arsenic, mercury, BEHP, hexachlorobenzene, pentachlorophenol, and PBDEs.
- Surface water PRGs should be based on organism only criteria, not organism plus water criteria, because RAO 2 does not include water consumption.
 - Mercury – A value of 4.3 ug/L is shown, but “NA” is provided in the “Basis for PRG” worksheet. What is the source of this value?
 - Aldrin - This PRG should be based on clam consumption, which is based on a lower ingestion rate than used for the Oregon WQS Table 40 value shown in the PRG table.
 - Pentachlorophenol - This PRG should be based on crayfish consumption, which is based on a lower ingestion rate than used for the Oregon WQS Table 40 value shown in the PRG table.
 - RAO 3, Surface Water
 - We continue to disagree that “source” PRGs should be presented in the revised FS.
 - As a corollary, we continue to disagree that there should be surface water PRGs for RAO 3 for any chemicals that were not found to pose unacceptable risk for direct contact and ingestion of surface water. This appears to include all chemicals listed except for BaPEq, MCP, arsenic, and hexavalent chromium, where we agree that risk-based PRGs are relevant (but not RSLs, which are meant for screening use not cleanup goals).
 - Pentachlorophenol – EPA lists this chemical as “risk” based in the COC tables. Per the previous bullet, we disagree that this chemical was found to pose unacceptable risks via this scenario.
 - It appears that some instances of note “A1” in the basis of PRG spreadsheet for this RAO should be note “A2” instead (i.e., the criteria shown are MCLs not Oregon WQS bioaccumulation criteria).
 - RAO 4, Groundwater
 - We continue to disagree that “source” PRGs should be presented in the revised FS. Because all of these proposed PRGs are “source” based, we disagree with incorporating any of them in the revised FS.
 - As a corollary, because the BHHRA did not evaluate groundwater (and found no unacceptable risks for shoreline seeps), there should be no risk-based PRGs for RAO 4.
 - Although per the prior two bullets we disagree there should be any PRGs for this RAO, to the extent that EPA retains any of these PRGs, a footnote should be added to the table indicating these PRGs only apply in groundwater plume areas down gradient of and unaffected by upland source control measures (consistent with EPA’s verbal statements in recent meetings).
 - RAO 5, Sediment
 - The benthic PRGs under RAO 5 should be consistent with the revised comprehensive benthic risk approach (CBRA; as recently provided by EPA). Instead of using individual chemical sediment benthic PRGs for RAO 5, two of the three predicted benthic toxicity thresholds that are used in the comprehensive benthic approach should be met:
 - the LRM L3 Pmax ≤ 0.59
 - the FPM L3 MQ ≤ 0.7
 - the PEC MQ ≤ 0.7

For spatial scale, we recommend looking at average surface sediment concentrations within each comprehensive benthic risk area or 0.5 RM by river segment, whichever is greater.

- PCBs – Please clarify the basis of the value of 126 ug/kg.
- Chromium – There should be no PRG because EPA did not identify chromium as a contaminant of ecological significance in Portland Harbor.
- BEHP – Please clarify the basis of the PRG of 148 ug/kg. There is no site-specific SQV or generic SQG for BEHP. It was not correlated with benthic toxicity in the Portland Harbor bioassay dataset. Also, this PRG is orders of magnitude lower than the threshold sediment concentrations for spotted sandpiper (the bird with the lowest TSCs). The NOAEL-based TSC for spotted sandpiper is 34,500 µg/kg.
- TBT – The value of 4 mg/kg is not a risk-based PRG. There is strong evidence presented in the BERA to support the LWG’s recommendation that TBT is not a contaminant of ecological significance based on either the benthic community or sculpin assessments. For these reasons we disagree with the TBT PRG.
- RAO 6, Sediment
 - There are only two COCs for this RAO (PCBs and DDx) shown on EPA’s COCs table. But the PRGs table shows PRGs for dioxin/furan and “NA” for several other chemicals. We disagree that “NA” should be shown for the other chemicals because it implies they are COCs, in conflict with the COC table.
 - Dioxin/Furan – The value of 0.054 ug/kg shown is for PeCDF and should be noted as such.
- RAO 6, Surface Water – No issues noted at this time.
- RAO 7, Surface Water
 - We continue to disagree that “source” PRGs should be presented in the revised FS.
 - As a corollary, we continue to disagree that there should be surface water PRGs for RAO 7 for any chemicals that were not found to pose potentially unacceptable risk via this matrix. This includes all chemicals with RAO 7 PRGs except for zinc, BEHP, total DDx, ethylbenzene, and TCE.
 - The RAO 7 PRG list includes total LPAH and total HPAH. The BERA found low HQs > 1 in near-bottom surface water for three individual PAHs proximal to elevated surface sediment concentrations: naphthalene, benzo(a)anthracene and benzo(a)pyrene. If there are to be RAO 7 PRGs for PAHs, why aren't they expressed in terms of the individual PAHs that were found to exceed surface water TRVs in the BERA?
 - Zinc – Why does this value (33 ug/L) differ from the one in RAO 8 (36.5 ug/L)? It appears this value should be 36 ug/L of dissolved zinc at a hardness of 25 mg/L.
 - Chlorobenze – Why does this value (50 ug/L) differ from the one in RAO 7 (64 ug/L)?
 - Tier II and other screening-type values shown for some chemicals are based on small toxicity data sets that are not sufficient for PRG development and should not be used for this purpose.
- RAO 8, Pore Water
 - We continue to disagree that “source” PRGs should be presented in the revised FS.
 - As a corollary, we continue to disagree that there should be pore water PRGs for RAO 8 for any chemicals that were not found to pose potentially unacceptable risk via this matrix. This includes all chemicals with RAO 8 PRGs except for benzo(a)anthracene, benzo(a)pyrene, naphthalene, TPH (specifically gasoline-range aliphatic hydrocarbons C10-C12), total DDx, chlorobenzene, cis-1,2-DCE, TCE and cyanide.
 - Tier II and other screening-type values shown for some chemicals are based on small toxicity data sets that are not sufficient for PRG development and should not be used for this purpose.

- Although per above we disagree there should be any PRGs for this RAO, to the extent that EPA retains any of these PRGs, a footnote should be added to the table indicating these PRGs only apply in groundwater plume areas down gradient of and unaffected by upland source control measures (consistent with EPA's verbal statements in recent meetings).